

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul D. Shirley
Serial No. : 10/773,968
Filed : February 6, 2004
Title : **DEVICE AND METHOD FOR FORMING AN IMPROVED RESIST
LAYER**
Docket : MIO 0112 PA
Examiner : Laura Edwards
Art Unit: 1792
Confirm. No.: 7341

Commissioner for Patents
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Sir:

REPLY BRIEF ON APPEAL

This Reply Brief is being filed pursuant to the provisions of 37 CFR 1.193(b) in response to the Examiner's Answer (hereinafter Answer) mailed on January 21, 2010. Remarks responsive to the issues raised in the Answer are set forth below. Pursuant to §1.193(b), the Examiner is requested either to acknowledge receipt and entry of the Reply Brief or withdraw the final rejection and reopen prosecution to respond to the Reply Brief.

US Patent 5,939,139 to Fujimoto neither teaches nor suggests the claimed resist dispenser in the manner suggested by the Examiner, and is therefore not an appropriate anticipatory reference against claims 1, 2, 16 and 18 through 20.

In the first full paragraph of page 4 of the Answer, the Examiner states that FIG. 1 of Fujimoto shows a resist dispenser **21**. In fact, column 1, lines 21 through 51 and column 5, lines 12 through 49 disclose a device for performing edge surface cleaning of an insulating protective film (also referred to interchangeably in Fujimoto as "insulating protective layer", "insulating layer", "coated film **30a**", "insulating protecting film **30a**" or the like). Importantly, the supposed resist dispenser **21** identified above by the Examiner

is actually a nozzle for dispensing a solvent supply, as clearly stated at column 5, lines 16 through 20. It is this solvent, as well as a supply of dry air or inert gas (such as nitrogen or argon) that is applied to the edge of an wafer surface that had an insulating layer applied to it in order to remove the insulating layer, that is taught in Fujimoto. Thus, neither the coating being operated upon nor the mechanism used to conduct such operation in Fujimoto is similar to that presently claimed. Because no fair reading of Fujimoto can construe the solvent dispensing nozzle **21** as a resist dispenser, coupled with the clear line of judicial authority that an anticipatory reference must teach or suggest all of the claimed features, the Appellant respectfully submits that the Examiner can no longer rely upon Fujimoto to anticipate claims 1, 2, 16 and 18 through 20.

The Examiner notes on pages 8 and 9 of the Examiner's Answer that an "intended use/purpose" of the recited structure to effect a local change in the rate of evaporation of the deposited resist is not to be given patentable weight. The Examiner goes on to state in the second full paragraph on page 9 that she "has read the instantly claimed invention with the broadest reasonable interpretation." This approach is incorrect, as MPEP 2111 clearly requires not an unmoored "broadest reasonable interpretation" but a broadest reasonable interpretation that is *consistent with the specification*. Because the originally-filed specification is replete with discussion of the localized nature of the changes in the evaporation rate of the deposited layer (specifically at page 2, lines 13 through 16, page 3, lines 2 through 9 and 30, page 5, lines 19 and 27, page 6, lines 8 and 26, page 10, line 30, page 11, lines 1 and 6, page 12, line 22 and page 13, line 10, as well as the independent claims), and such discussion makes it manifest that the localized nature of the resist layer evaporation rate is a structural limitation unique to the claimed device, the only way the Examiner's "broadest reasonable interpretation" can be legitimate is if it is made consistent with such discussion. Because the Examiner by her own admission interpreted the claim language in a manner inconsistent with well-established patent practice, the Board, in looking askance at such approach, must conclude that the present rejection by Fujimoto is defective. Furthermore, the Appellant believes that properly construed, the claims 1, 2, 16 and 18 through 20 set forth in positive terms sufficient patentably distinguishable limitations.

US Patent 5,919,520 to Tateyama neither teaches nor suggests the claimed resist dispenser capable of effecting a localized change in the rate of evaporation of the deposited resist in the manner suggested by the Examiner, and is therefore not an appropriate anticipatory reference against claims 1 through 7, 10, 12 through 18 and 20.

It is well-established that all words in a claim must be considered in judging the patentability of that claim against the prior art, *In re Miller*, 169 USPQ 597, 600 ((CCPA 1971), quoting *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970)), while MPEP 2111.01 requires that claim terms are to be construed to have their ordinary meaning unless the specification indicates otherwise. Page 2, lines 15 through 17 of the original specification states that "[i]n the present context, a local change in evaporation rate is distinguished from that produced over the substantial entirety of the resist layer in that discrete (rather than global) thickness changes can be effected." To further emphasize the point, the localized nature of the resist evaporation rate is repeated at page 3, lines 2 through 6 to ensure that the control fluid is applied "discretely rather than indiscriminately". By contrast, column 8, lines 45 through 52 of Tateyama unequivocally states that the control fluid supply **80** (called an air nozzle by Tateyama) has spouting holes over *its entire length* and that it spouts air *onto the entire top surface* of the wafer *by a so-called air knife operation*. Given elsewhere in Tateyama that the wafer **W** is formed on a spin chuck **10** that during operation is (out of necessity) spinning, it is impossible for the control fluid supply **80** of Tateyama to provide the claimed localized change in rate of evaporation as understood by the above passage in the original specification. In fact, it is only possible for the device of Tateyama to have the air impart the entirety of the wafer **W** surface, thereby be limited to providing impingement to the entire surface. As such, the present attempt by the Examiner to equate the localized, discrete application of a control fluid in the claimed device with the indiscriminate (i.e., entire surface) control fluid deposition of Tateyama amounts to the Examiner construing the claim term in a manner that would destroy its plain meaning as understood by the specification. Concomitantly, such an approach is impermissible under well-established patent practice, and therefore the present rejection of claims 1 through 7, 10, 12 through 18 and 20 should be reversed by this Board.

Furthermore, the Examiner substantially repeats on pages 10 through 12 her unwillingness to impart patentable weight to the recited structure that effects a local change in the rate of evaporation of the deposited resist as being more of the "intended use/purpose" language discussed above in conjunction with Fujimoto. As discussed above, MPEP 2111 does not permit the Examiner's "broadest reasonable interpretation" but a broadest reasonable interpretation that is consistent with the specification. Because the specification makes it clear that this local change in the rate of evaporation of the deposited resist is to be read as part of the remainder of the structural limitations in claims 1 through 7, 10, 12 through 18 and 20, the Appellant submits that the Examiner's present rejection must be reversed by this Board.

Fujimoto and Tateyama are not properly combinable to teach or suggest the claimed plurality of fluid dispensing nozzles in the manner suggested by the Examiner, and therefore do not form an appropriate obviousness rejection against claims 3 and 4.

The claimed limitation of a plurality of fluid dispensing nozzles still permits the claim 1 limitation of a "local change in evaporation rate" of the deposited layer. The Examiner's use of the air nozzle **80** with "spouting holes along the entire length" to permit air impingement "onto the entire top surface of wafer **W**" in Tateyama as a way to satisfy the limitations of claims 3 and 4 remains violative of the limitation in underlying independent claim 1 that limit changes to the deposited layer evaporation rate to being "local". As discussed above in conjunction with the Examiner's present anticipatory rejection under Tateyama, there is no way to reconcile the claimed local change in evaporation rate with the wholesale changes produced by the device of Tateyama.

"To establish a *prima facie* case of obviousness, three basic criteria must be met." MPEP 2143. One of the requirements is that there must be some motivation to combine the references. MPEP 2143.01. Importantly, MPEP 2145(X)(D) and 2141.02 state one of ordinary skill in the art would not have been motivated to combine the primary and secondary references in order to reproduce the claimed device in situations where the two references teach away from one another, even with the more relaxed obviousness standard set forth in the recent Supreme Court case *KSR International Co. v. Teleflex*

Inc., 550 U.S. 398 (2007). Specifically, the Court of Appeals for the Federal Circuit has clearly indicated that it is still inappropriate to combine references when one teaches away from the other, as "a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Kubin*, 90 USPQ2d 1417, 1421 (citing *In re Gurley*, 31 USPQ2d 1130 (Fed. Cir. 1994)). Under such authority, one of ordinary skill in the art would not look to the Examiner's proposed combination of Tateyama and Fujimoto as a way to come up with the claimed invention.

As such, the only way the Examiner can produce the claimed resist depositing device is to use the Applicant's disclosure as a roadmap in order to pick and choose the desirable attributes from each of these references. The line of authority prohibiting this approach in obviousness rejections is extensive and well-established, holding that it "is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965). See also *W.L. Gore & Assoc., Inc. v. Garlock*, 220 USPQ 303, 312 (Fed. Cir. 1983) where the court was adamant about not allowing one to pick and choose among individual parts of assorted prior art references "as a mosaic to recreate a facsimile of the claimed invention." For this, the Examiner's present rejection of claims 3 and 4 is impermissible, and should therefore be reversed by this Board.

Tateyama and US Published Application 2002/0176936 to Matsuyama do not teach or suggest the claimed humidity and temperature supplies in conjunction with the underlying limitations form claim 5 in the manner suggested by the Examiner, and therefore do not form an appropriate obviousness rejection against claims 8 and 9.

As stated above, no fair reading of Tateyama teaches or suggests the claim 1 limitation of a *local* change in evaporation rate of the deposited resist layer. Independent claim 5 (from which claims 8 and 9 depend), also recites this local change in evaporation rate of the deposited resist layer. Because there is nothing in Matsuyama to correct the

deficiencies in the Tateyama teaching with regard to this claim limitation, the Examiner's proposed combination of them fails to satisfy the requirements in MPEP 2143.03 that to establish a *prima facie* case of obviousness, all of the claim limitations must be taught or suggested. Accordingly, the present rejection of claims 8 and 9 must be reversed by this Board.

The present rejection of claim 11 under 35 USC 103(a) over Tateyama in view of US Patent 7,077,910 to Chappa et al. does not form an appropriate obviousness rejection, as the combination does not teach or suggest the claimed controller in conjunction with the underlying limitations form claim 5 in the manner suggested by the Examiner.

Claim 11 depends from independent claim 5, and in a manner similar to that discussed immediately above in conjunction with claims 8 and 9, Tateyama fails to teach or suggest the claim 5 limitation of a *local* change in evaporation rate of the deposited resist layer. Because there is nothing in Chappa to correct the deficiencies in the Tateyama teaching with regard to this claim limitation, the Examiner's proposed combination of them fails to satisfy MPEP 2143.03, and therefore must be reversed by this Board, as failing to make out a *prima facie* case of obviousness.

The present rejection of claim 19 under 35 USC 103(a) over Tateyama in view of Fujimoto does not form an appropriate obviousness rejection, as the combination does not teach or suggest the claimed controller in conjunction with the underlying limitations form claim 16 in the manner suggested by the Examiner.

Claim 19 depends from independent claim 16 that, in a manner similar to that of independent claims 1 and 5, includes a limitation to a local change in evaporation rate of the deposited resist layer. Because there is nothing in Fujimoto to correct the deficiencies in the Tateyama teaching with regard to this claim limitation, the Examiner's proposed combination of them fails to satisfy MPEP 2143.03, and as such, a *prima facie* case of obviousness. Accordingly, the present rejection must be reversed by this Board.

In conclusion, the Appellant respectfully submits that there are significant deficiencies in the Examiner's rejection of all of the claims pending in the application, and that for the reasons articulated in both the Appeal Brief and this Reply Brief, these deficiencies are sufficient to warrant a reversal by this Board.

Respectfully submitted,
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